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# SCIENCE NEWS LETTER

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THE WEEKLY SUMMARY OF CURRENT SCIENCE • MARCH 13, 1948

**Scientists of the Future**

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A SCIENCE SERVICE PUBLICATION

GENERAL SCIENCE

# Top Science Scholarships

**Youngest of the finalists, Andrew Kende, improves industrial reagent while his co-winner, Barbara Wolff, studies changes in fruit flies.**

**See Front Cover**

➤ GREATER safety for workers in chemical factories may result from original research by a 15-year-old high school student, Andrew S. Kende of Evanston, Ill., who received one of two $2,400 scholarship awards at the close of the Seventh Annual Science Talent Search in Washington, D. C.

Recipient of the other grand prize scholarship was Barbara C. Wolff, 17, senior in Forest Hills (N. Y.) High School. Her research project was the study of phenocopies in fruit flies. These are changes in body shape and color resembling mutations, but are produced by environmental influences and are good for one generation only.

Mr. Kende was using, in some of his chemical work, what is known as a Grignard reagent. This is dangerous both to use and to make because its principal ingredients are ether and magnesium—both highly inflammable. Despite their dangerous nature, Grignard reagents are widely used in industry today.

He searched the literature of chemistry for possible records of a safer material to use. Not finding any, he decided to try to make one himself, using something less flammable than ether. He finally succeeded in making workable Grignard reagents with not only one, but three, possible substitutes for the dangerous ether.

Mr. Kende and Miss Wolff, shown on the cover of this week's SCIENCE NEWS LETTER, are two of the 40 winners of the Science Talent Search who have spent five days at the Science Talent Institute conducted by Science Clubs of America, with funds supplied by the Westinghouse Educational Foundation. At the concluding banquet, when their choice as recipients of the two top prizes was announced, $6,200 in additional Westinghouse Science Scholarships was distributed among the other 38 contestants.

For all the mental brilliance that has won early distinction for them, these students are not the pale-faced bluestockings that young scholars are sometimes depicted. Miss Wolff is editor of her high school paper, and her club memberships include groups interested in mathematics, microscopy, badminton and cancer research. She likes classical music and modern dancing. Mr. Kende, who is the youngest of the 40 finalists in this year's Science Talent Search, will graduate from high school in three years, by dint of attending summer school straight through. Although his chief interest is in chemistry, his hobbies take a natural-history bent; his outdoor interests include minerals, insects and reptiles.

*Science News Letter, March 13, 1948*

GENERAL SCIENCE

## Winners of Westinghouse Science Scholarships

### GRAND SCHOLARSHIPS OF $2,400

Wolff, Barbara Claire, Forest Hills High School, Forest Hills, N. Y.
Kende, Andrew Steven, Evanston Township High School, Evanston, Ill.

### ALTERNATES

Maurer, Laura Caroline, South Side High School, Rockville Centre, N. Y.
Kohn, Kurt William, Bronx High School of Science, New York, N. Y.

### SCHOLARSHIPS OF $400

Maurer, Laura Caroline, South Side High School, Rockville Centre, N. Y.
Alexeff, Igor, Mt. Lebanon High School, Pittsburgh, Pa.
Baraff, Gene Allen, Forest Hills High School, Forest Hills, N. Y.
Howett, Gerald Leonard, Abraham Lincoln High School, Brooklyn, N. Y.
Johnston, Alan Robert, Van Nuys High School, Van Nuys, Calif.
Kohn, Kurt William, Bronx High School of Science, New York, N. Y.
LeSchack, Alan Richard, Stuyvesant High School, New York, N. Y.
Rayna, Gerhard, Stuyvesant High School, New York, N. Y.
Rigal, R. Daniel, Liberty Center Village High School, Liberty Center, Ohio
Yphantis, David Andrew, Public Latin School, Boston, Mass.

### ALTERNATES

Zisk, Stanley Harris, Public Latin School, Boston, Mass.
Geller, David Melville, Oak Park Township High School, Oak Park, Ill.
Schaad, Lawrence Joseph, Logan High School, Logan, Ohio

### SCHOLARSHIPS OF $100

Blumenheim, Ursel Joyce, Forest Hills High School, Forest Hills, N. Y.
Childress, Patricia Lee, Alexander Hamilton High School, Los Angeles, Calif.
Decker, Charlotte Elizabeth, Senn High School, Chicago, Ill.
Gilbert, Marjorie Ann, Brodhead High School, Brodhead, Wis.
Rowe, Nancy Jean, Lincoln High School, Canton, Ohio
Sawyer, Millicent Margaret, Wiley High School, Terre Haute, Ind.
Berry, Richard Stephen, East High School, Denver, Colo.
Breslow, Ronald Charles, Rahway High School, Rahway, N. J.
Camamis, George, New Brunswick Senior High School, New Brunswick, N. J.
Coe, Elmon Lee, North Phoenix High School, Phoenix, Ariz.
Dibble, William Edwin, Herbert Hoover High School, Glendale, Calif.
Geller, David Melville, Oak Park Township High School, Oak Park, Ill.
Jamieson, John Burgess, Sewanhaka High School, Floral Park, N. Y.
Koehler, George Edgar, West High School, Madison, Wis.
Lubin, Michael David, Tottenville High School, Staten Island, N. Y.
Martin, Paul, Stuyvesant High School, New York, N. Y.
Mazo, Robert Marc, Flushing High School, Flushing, N. Y.
Miller, Jerry Blair, Lincoln High School, Canton, Ohio
Peacock, Roy Norman, Springfield Union High School, Springfield, Ore.
Poindexter, Edward Haviland, J. W. Sexton High School, Lansing, Mich.
Richardson, James Wyman, Washington High School, Sioux Falls, S. D.
Rodemich, Eugene Richard, Beaumont High School, St. Louis, Mo.
Schaad, Lawrence Joseph, Logan High School, Logan, Ohio
Scheider, Walter Julius, Bronx High School of Science, New York, N. Y.
Shlichta, Paul Joseph, Brooklyn Preparatory School, Brooklyn, N. Y.
Teager, Herbert Martin, Midwood High School, Brooklyn, N. Y.
Wilcox, Charles Frederick, Jr., Greenwich High School, Greenwich, Conn.
Zisk, Stanley Harris, Public Latin School, Boston, Mass.

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***TOP TEN—Left to right: Kurt William Kohn, alternate boy for the top scholarship; the group visits experimental greenhouses of the U. S. Department of Agriculture at Beltsville, Md.; Laura Caroline Maurer, alternate girl for the $2,400 scholarship. The top winners are congratulated by Watson Davis and Dr. W. W. Waymack. Some of the group are shown talking with Dr. I. I. Rabi. Winners of $400 scholarships are: Igor Alexeff, Gene Allen Baraff, Gerald Leonard Howett, Alan Robert Johnston, Alan Richard LeSchack, Gerhard Rayna, R. Daniel Rigal, and David Andrew Yphantis.***

GENERAL SCIENCE

# Many Problems Unsolved

**Leading scientists point to broadening scientific horizons that require young trained minds in fields of astronomy, medicine and physics.**

➤ THREE leading scientists answered questions about astronomy, viruses, and physics of talented teen-agers over the Columbia Broadcasting System.

This was one of the highlights of the five-day Science Talent Institute held in Washington (Feb. 27-March 2) and attended by 40 boy and girl honor-trip winners. It marked the culminating event of the Science Talent Search for $11,000 in Westinghouse Science Scholarships. This search is conducted by Science Clubs of America, administered by Science Service.

## Dr. Harlow Shapley

*Dr. Harlow Shapley, director of the Harvard College Observatory and president of Science Service, informed all high school future scientists that:*

The world is very far from finished, and there are many, many problems that we older scientists won't have time to solve or even start to solve. And each new advance in science brings new problems, like the development of atomic energy.

You might think that the oldest of the sciences, astronomy, would have succeeded in two thousand years in finding all the answers. But it hasn't. With our modern telescopes and our modern ideas we have increased the volume of explorable space by a billion times during the past generation; but that big advance does not answer all the problems. In fact, it opens up many that we did not know were in existence. I believe I could talk off now, in the next ten minutes, without referring to a note, 40 investigations in the fields of stars and galaxies, each of which would justify a doctor's degree, if satisfactorily completed. And in the fields of shooting stars, the planets, comets, and especially of the sun and its radiation, there are equally many unsolved problems which we now know how to get hold of.

Also there is being born at this time a new branch of astronomy practically unknown ten years ago. Its triumphs are nearly all in the future, and it will have a tremendous appeal, not only to the pioneer scientists, but to the radio hams and the electronic gadgeteers.

I am referring to what we might call microwave astronomy, or radio astronomy. I've just been summarizing the principal contents of this new branch of astronomy which we add to the three other general fields of research—photometry, astrometry, and spectroscopy. There are, of course, the theoretical branches of astronomy like celestial mechanics, the theory of radiation and atomic transformations—but I'm talking about observational astronomy.

In this new field of microwave astronomy, or radio astronomy, we have such adventures as the exploration of the ionosphere and its various layers; the measurement by radio of the heights and numbers and motions of shooting stars in our Earth's atmosphere; the bouncing of radio waves off the Moon, which is not nearly as silly as it sounds, because this two-way connection with the Moon will help us explore our own upper atmosphere and especially explore the so-called empty space between the Earth and Moon; and finally there is solar noise, and cosmic static. And in addition to those five fields of this new branch of astronomy we must mention the measurement of cosmic radiation somewhere —the measurement of those highly penetrating cosmic rays, for which the origin is unknown.

Personally, I am hoping to make use of the radio noises from the region of the constellation Sagittarius in the Milky Way as a part of my exploration of what I call the Hub of the Universe, which lies more than 20,000 lightyears away, and sends us not only the light of the billions of stars in the nucleus but apparently broadcasts in the ten meter band.

## Dr. Wendell M. Stanley

*Dr. Wendell M. Stanley of the Rockefeller Institute for Medical Research, a Nobel prize winner in medicine and physiology, told the science-minded high school audience that:*

I think that I can give you, and the host of young scientists who may be listening in, every assurance that you need have no worry about lack of scien-

***HOBBIES BRING HONORS*** — *Barbara Wolff shows phenocopies in fruit flies; Andrew Kende, new solvents to reduce explosion hazards; Kurt Kohn, ant colony; Ursel Blumenheim, planarians; Stanley Zisk, radio transmitter; Walter Scheider, electronic photoflash; Lawrence Schaad, apparatus for growing organisms under glass; Gerald Howett, three dimensional graphs; Gene Baraff, home-built telescope; Laura Maurer, electrical formula test; David Geller, hard-water-effect on soaps, detergents; John Jamieson, apparatus for high frequency directive antenna measurement. Read left to right.*

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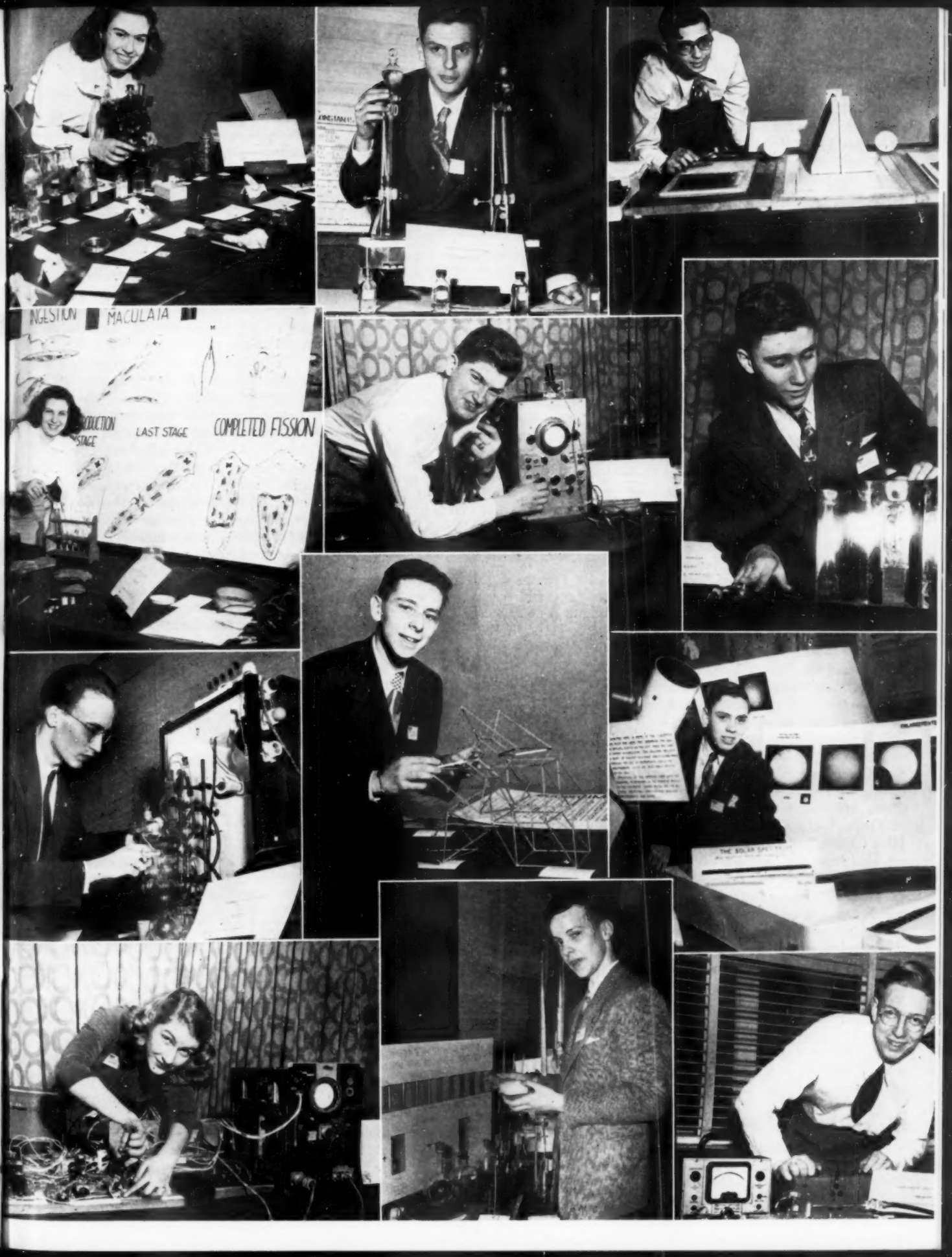
INGESTION
MACULATA
LAST STAGE
COMPLETED FISSION

tific worlds to conquer. Despite the large number of scientists now at work there is no lack of interesting and important problems. The very nature of science is such that the solving of an important problem usually only serves to uncover other new and important problems. Thus, although progress is being made, the scientific horizon is becoming broader and broader, and the need for well trained young scientists is becoming more intense.

Although diseases caused by viruses have been recognized for hundreds of years, the viruses themselves were recognized only about 50 years ago, and they seemed to have the properties of small living organisms. But most viruses proved to be so small that they couldn't be seen with even the best light microscopes and their true nature remained somewhat a mystery.

### Tobacco Mosaic Virus

Now you might think when I obtained tobacco mosaic virus in the form of a crystalline nucleoprotein in 1935, that the mystery surrounding the nature of viruses would disappear. But this did not prove to be the case. Although a few other viruses were found to be crystalline nucleoproteins, still other viruses were found to consist of large particles having a morphology somewhat similar to that of living organisms. These viruses seem to consist of a series of structures of gradually increasing complexity and to provide a connecting link between the molecules of the chemist and the organisms of the biologist. They exist at the very twilight zone of life and as one learns more about them, many new problems arise.

One of these problems might be: How do viruses grow or reproduce? And we also have the problem of how they change or mutate to form new strains which cause different patterns of disease.

Because viruses represent the simplest structures we know having properties characteristic of living organisms, studies on viruses should help solve the many problems relating to the nature of life. You see, there are exciting and important problems that face us today. I can assure you that some of these or other new, equally exciting and important problems will be with us and ready for you, five, ten and even 50 years hence.

## Dr. Karl Lark-Horovitz

*Dr. Karl Lark-Horovitz, head of the department of physics of Purdue University in Indiana, said:*

We must learn to understand the nature of elementary particles, the forces with which they interact and the manner in which they can be arranged. Solve this general problem and we would understand the behavior of the atom with its electrons and nucleus and the cosmic radiation. The construction and operation of giant new high-voltage machines has resulted from our understanding of the way in which fast-moving particles act.

### Research in Realm of Volts

We know already that production of new chemical elements and new reactions result from investigations in the realm of hundreds of millions of volts reached so far. One exciting result of recent research has been the large-scale production of materials which at will can be made into insulators or conductors of electricity. This is a discovery which promises much for the future of electronics.

The machine age in physics has just begun. We may confidently expect, within the next decade, to see high energy experiments in the laboratory in the billion-volt range. We shall thus produce systematically what are nowadays only sporadic events in nature. The fields of radiation chemistry and radio-biology have been barely tapped. To succeed fully in these new fields there must be cooperation between physicists, chemists, and biologists to study the way radiation and matter interact whether it is living or inorganic. Physical methods may change the whole aspect of chemical analysis within the next decade. When we get more insight into the basic nature of the way particles and radiation interact, we shall have to reformulate our philosophy. We've known since the days of Gilbert, over 300 years ago, that the earth is a giant magnet. But we don't know why. That is a problem and a challenge for you. Living organisms have a tremendous sensitivity that makes our electronic instruments seem clumsy indeed. There will be many new things to do in the future particularly in the borderlands between physics and biology and physics, astronomy, and geology.

*Science News Letter, March 13, 1948*

## STS Winner Writes

*"With the development of the remarkable silicones and other new commercial compounds, such as many of the synthetic sex hormones, the importance of Grignard reagents in industry has assumed new meaning.*

*"In my work with organic silicon polymers, the usefulness and disadvantages of Grignard reactions soon became apparent. The outstanding drawback of Grignard processes is the always present fire hazard due to the explosive vapors of the commonly used solvent, ethyl ether.*

*"The purpose of my project is the elimination, or at least reduction of the danger of working with this flammable, volatile liquid, without seriously inhibiting the vigor of the reaction. It is well known that higher alkyl ethers as well as aromatic ethers are less volatile and considerably less hazardous than ethyl ether. Specifically then, I was interested in establishing whether or not some or all of these different ether types could be used, instead of ethyl ether, to make a Grignard reagent.*

*"It has been shown that certain relatively non-volatile ethers can be used in Grignard reactions. . . . These are dibutyl ether, anisole, and diphenyl ether."*—From the essay of Andrew S. Kende.

GENERAL SCIENCE

# From Many Walks of Life

By GWILYM A. PRICE

**President, Westinghouse Electric Corp. Member of the Board, Westinghouse Educational Foundation**

*Message delivered at the Awards Banquet of the Seventh Annual Science Talent Search, Washington, D. C.*

➤ MY compliments to you, Mr. Davis, and to all the others who have made this Science Talent Institute the success it has been. And I extend the gratitude of our organization to all the guests who have taken their time from busy days to do honor to our 40 Science Talent Search finalists for their high achievements.

To the 40 young men and women, my warmest congratulations.

As I looked over the biographical information about these young people, I was impressed by the varied paths that have led them to Washington. They come from 16 different states, and five of them were born in other lands. Many of them have parents who were born abroad. And their parents follow many walks of life—a missionary, a machinist, a high school principal, a sheet metal

## STS Winner Writes

*"Four or five days after the first larvae appeared, they were removed from the tube and placed in a Syracuse dish in one-eighth of an inch of cynanin solution at a distance of nine inches from a 100-watt, 120-volt desk lamp. The larvae were irradiated for periods varying from 20 to 30 minutes. They were then rinsed in Solution A to remove the excess dye. The irradiated larvae were then placed in fresh medium, a record being kept of the number placed in each tube. They were allowed to develop, and as the flies hatched, they were examined for variations.*

*"I plan to continue this work, photographing and making slides of the variations. I shall attempt to produce phenocopies by varying the temperature during the critical period. I shall also attempt to improve my technique, to get the exact age at which the development of the larvae can be affected, and to determine the similarity of the somatic variations I have produced to mutations known to occur in Drosophila.*

*"Through my work with Drosophila, I am learning the technique and methods of experimentation in one branch of biology. I am learning that research work in science is hard and often discouraging, but a thrilling and rewarding experience."*—From the essay of Barbara Wolff.

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worker, a doctor—to mention a few.

I doubt that there is any other nation in the world where a search of this kind would turn up youthful talent from so rich and varied a background. As an editorial writer for the *Newark Evening News* has said concerning this Search, "The American dream is many things and of it each writes his own definition, but its essence is the recognition that ability has nothing to do with racial origin or economic circumstances, and that opportunity for self-development is available to all."

Tonight's banquet is the final wind-up of five very busy and full days for this group of young people. But, like all graduations, it is really a commencement. Because they have been singled out from the 16,000 boys and girls who started toward this goal, from now on they are in the spotlight.

Their country will be watching their progress. For we all know that when everything is right with our young people, there is a good chance that everything else will work out all right.

I once heard a story that illustrates what I mean. A young father, finding his son with nothing to do, tore a map of the world out of a magazine, cut it up, and gave it to the boy to piece together again. A few minutes later the job was finished, and he asked his son how in the world he ever did it so fast. "Well, Daddy," said the lad, "on the back of the map was a picture of a boy. I knew that if I could build the boy right, the world would come out right, too."

In young people of the caliber of our STS winners lie the hopes of our country and the world in years to come.

*Science News Letter, March 13, 1948*

GENERAL SCIENCE

# Employment in Science

➤ CHOOSE your field on the basis of your own abilities, rather than upon the considerations of economic outlook, is the advice of Ewan Clague, commissioner of Labor Statistics at the U. S. Department of Labor, to future young scientists.

Speaking before the Educational Conference of the Seventh Annual Science Talent Search, Dr. Clague said that although there is now a shortage of trained workers in leading scientific and technical professions, this condition should improve within a few years. "We are now training more young people in the colleges for the scientific professions than ever before," he declared.

Recent estimates made by the President's Commission on Higher Education indicated that on the basis of past trends college enrollments would rise to 2,900,000 by 1960, or more than one-fourth above the 1947 peak, he pointed out.

This means that competition will be keen and subject to rapid change, he predicted, as science opens new fields, as industrial use of research advances, or as the international situation changes.

In attempting to answer what these trends imply for the individual student interested in the sciences, he presented the analyses made by the Occupational Outlook Service of his department and gave this further advice:

"Each young person planning to go into the sciences must prepare to undertake a rigorous and thorough course of training and preferably to complete graduate study. The long term trend toward requiring more advanced education for scientific professions, as well as the competition foreseen in the next few years, recommends this.

"At the same time it will be desirable for each student to maintain the maximum degree of occupational flexibility, so that he can adapt to changing circumstances. This means getting the broadest basic scientific education as well as specializing in a particular field. It means also being prepared to make adjustments and keeping an open mind on the subject of one's occupational specialization."

*Science News Letter, March 13, 1948*

GENERAL SCIENCE

# Spot Science Talent Early

➤ YOUTHFUL scientists should be made to feel that they are as important as athletes, Dr. Arthur S. Adams, provost of Cornell University, declared at the Educational Conference of the Seventh Annual Science Talent Search, meeting in conjunction with the Science Talent Institute held for the 40 winning high school scientists in the Search.

Dr. Adams told educators at the conference that the first job in solving the national problem of providing adequate scientific personnel was to spot science talent early.

He praised the Science Talent Search as "a fundamental effort to achieve such identification and to give important recognition to those who have given convincing evidence of their promise in scientific work."

Once science talent is discovered, it must be encouraged, Dr. Adams pointed out, adding that money is not the only requirement.

"The individual who is blessed with superior scientific aptitude should be made to feel that his talent is as important to society as is, for instance, the talent of an athlete," the educator asserted.

He warned against making the young scientist "a sort of intellectual curiosity."

Development of the relationship between professional work of the scientist and its social significance was urged, and Dr. Adams emphasized that the young scientist must learn to work effectively with other scientists.

*Science News Letter, March 13, 1948*

MEDICINE

## Test for "Silent" Cancer By Vitamin A in Blood

➤ A NEW test for detecting "silent" cancers in time for successful treatment may come from studies at the Warwick Memorial Clinic of Washington, D. C.

Cancer of the stomach, which rarely shows symptoms in the early stages, is one kind that the new test might pick up. The test would be made by measuring the amount of vitamin A in the blood. If this is less than normal, the person would be given vitamin A either by special diet or capsules or both.

If he responded to this treatment and the amount of vitamin A in his blood came up to normal, it probably would mean he had been having a vitamin A deficiency due to poor diet. But if his blood did not show an increase in vitamin A content after treatment with the vitamin, it would mean he had cancer.

The test "looks good on paper but it may turn out to be a dud," Dr. Calvin T. Klopp, medical director of the clinic, warned.

Basis for the test is the finding some years ago by the late Dr. J. Abels of Memorial Hospital, New York, that 87% of patients with certain kinds of cancer, including stomach cancer, had blood low in vitamin A. In persons without cancer, 11% were found to have this low vitamin A level in the blood. Treatment with vitamin A did not bring the amount in the cancer patients' blood to normal, but did bring the vitamin level to normal in the non-cancer group. Dr. Abels' study was aimed at learning what was wrong in the body chemistry of patients with cancer. Dr. Klopp is using his finding from the opposite approach of trying to detect "silent" cancer in apparently healthy people.

The vitamin A study is one of 10 projects the Warwick Memorial Clinic will undertake with aid from the American Cancer Society. A grant of $50,000 to the clinic was just announced by Douglass Poteat, ACS executive vice president. The clinic is about to become affiliated with George Washington University School of Medicine.

*Science News Letter, March 13, 1948*

BACTERIOLOGY

## Bacteria Are Paralyzed By Penicillin Attack

➤ PICTURES of what happens to bacteria attacked by penicillin have been obtained by two French bacteriologists, Drs. R. Tulasne and R. Vendrely, of the University of Strasbourg. They present their results in the British science journal, *Nature* (Feb. 28).

Drs. Tulasne and Vendrely first developed a chemical method for making visible the nuclei of bacteria, the very existence of which was regarded as doubtful a few years ago. Sometimes two or four nuclei appear in cells when growth and multiplication are rapidly taking place.

Using this technique on bacteria grown on food substances to which penicillin had been added, they found that the bacterial cells swelled up a great deal, and that the nuclear material appeared in several distinct masses, but that the cells did not divide. The bacteriostatic effect of penicillin therefore seems to be a paralysis of the cell's general protoplasm, rather than a stoppage of nuclear division.

*Science News Letter, March 13, 1948*

CHEMISTRY

## Vitamin A Originates in Young Plants, Vegetables

➤ YOUNG plants and vegetables are the original source of vitamin A. This finding, which upsets previous scientific teaching on the subject, was made by Prof. Edith A. Roberts and Miss Mildred D. Southwick of the Vassar College department of plant science, Poughkeepsie, N. Y.

The electron microscope, modern scientific tool for studying things so small they cannot be seen even with high powered light microscopes, was used in the discovery.

Heretofore, the livers of fish were considered the main source of vitamin A. Plants were believed to furnish only a chemical parent of the vitamin, called carotene. The vitamin itself was believed formed in the liver from plant foods.

This belief is disproved by the Vassar scientists' discovery. Vitamin A, they showed, is first formed in the plant and there built into carotene and stored as such. So vitamin A is really the chemical parent of carotene, instead of carotene being the vitamin's parent chemical. Carotene can, however, be reconverted to vitamin A.

From the standpoint of human nourishment, this means that young green and yellow plants, which contain quantities of the vitamin itself, are the practical source of it.

*Science News Letter, March 13, 1948*

# IN SCIEN

CHEMISTRY

## New B-Group Vitamin Reported Discovered

➤ DISCOVERY of a new vitamin, believed to be a member of the vitamin B group, was announced by Prof. S. M. Hauge of Purdue University at a conference on feeds of the beverage distilleries in Cincinnati.

Existence of the vitamin was first suspected in studies on chicks. Later work leading to positive knowledge of its existence was done with rats. It is a growth factor for rats, chicks and a micro-organism, Lactobacillus arabinosis, but what human use it may have was not reported by Prof. Hauge. The vitamin was discovered in an animal food called distillers dried solubles which is derived from distillery wastes. This material and also condensed fish solubles may contain still other growth factors, or vitamins, Prof. Hauge said.

*Science News Letter, March 13, 1948*

RADIOLOGY

## New Germ-Killing Lamp Doubles Previous Potency

➤ A RADICAL change in design features a new germ-killing ultraviolet lamp which is twice as effective in destroying bacteria and viruses in the air as previous types. It is a 36-inch-long tube which emits twice the usual amount of ultraviolet radiation.

The new lamp, developed in Bloomfield, N. J., by Westinghouse, not only produces more ultraviolet radiation for each watt of electricity consumed but it also provides an almost uniform level of radiation throughout its life. These radiations are generated by passing an electric current through the three-foot tube containing mercury vapor and other gases.

The glass used in the tube is a type with a remarkable resistance to what scientists call solarization. This is an invisible "suntanning" in glass which reduces the amount of bacteria-killing radiation. The rated life of the new lamp is 6,000 hours, or almost a year of normal usage. The previous average rated life of similar lamps has been 4,000 hours.

*Science News Letter, March 13, 1948*

# NE FIELDS

MEDICINE

## Allergy Remedy Suggested As Viper Venom Antidote

➤ USE of one of the modern allergy remedies, benadryl, as an antidote for viper venom poisoning was suggested by Drs. J. S. Chowhan and D. P. Ghosh of Calcutta at the Indian Science Congress held in Patna, India.

Viper venom, they point out, acts mainly on the blood circulation system and the collapse that follows is like that caused by histamine. The anti-histamine action of benadryl led the Indian scientists to test it as an anti-venom drug in laboratory animals poisoned by Russell's viper venom. The animals were in collapse. But small doses of benadryl injected into their veins restored their blood pressure to normal and relieved the breathing distress they suffered.

Benadryl was effective in the animals whether injected mixed with viper venom or immediately after a big dose of the venom. The Calcutta scientists suggest using it by mouth or by injection into muscles or veins of human viper venom victims.

*Science News Letter, March 13, 1948*

IMMUNOLOGY

## New Vaccines for Plague, Cholera Prepared in India

➤ NEW and more powerful vaccines against plague and cholera have been developed at the Haffkine Institute of Bombay, India. Preparation of the cholera vaccine in a casein medium (casein hydrolysate) was shown by Major-General Sir Sahib Singh Sokhey, director of the Institute, to a group of foreign scientists who had attended the Indian Science Congress at Patna.

A biological method for measuring the protective action of the cholera vaccine has been worked out and shows it to be 100 to 1000 times more powerful than the vaccine in use before.

The cause of the recurring plague epidemics in Bombay province has been traced to certain endemic areas with special conditions of temperature and humidity. From these areas infection is carried to adjoining areas when climatic conditions permit epidemics to occur.

By preparation of vitamins and various chemical remedies such as sulfa drugs in substantial quantities and sale of some of them to hospitals and government institutions, the Haffkine Institute has become self-supporting.

The manufacture of a polyvalent anti-snake venom serum against the venom of the four common poisonous snakes of India, the cobra, Russell's viper, the saw-scaled viper and the common krait, is also carried out at the Institute. The drawing out of the venom from the fangs of the snakes is one of the more spectacular activities of the Institute staff.

*Science News Letter, March 13, 1948*

GENERAL SCIENCE

## Form New Society for Scientists in Industry

➤ A NEW scientific organization designed for scientists in industry and technical schools has been organized in New Haven, Conn., under the sponsorship of Sigma Xi, a national honorary scientific organization in American universities.

The new group, called the Scientific Research Society of America, is planned to fill a gap in scientific organizations, and extend the benefits of the university society to scientists in research laboratories outside institutions of higher learning. The Scientific Research Society of America will be modeled on Sigma Xi, and its activities will include local group functions, national lectureships, publications and grants-in-aid.

*Science News Letter, March 13, 1948*

GENERAL SCIENCE

## French Atomic Scientist Named to UNESCO Position

➤ PROF. Pierre Auger, French atomic energy expert after whom cosmic ray bursts are called Auger showers, is the new head of UNESCO's natural sciences section, succeeding Dr. Joseph Needham, British biologist who is returning to his professorship at Cambridge University.

Dr. Clarence E. Beeby, New Zealand director of education will coordinate UNESCO's educational activities as assistant director-general while Prof. Pedro Bosch Gimpera, archaeologist, formerly dean of philosophy at University of Barcelona, and recently professor at the University of Mexico, is the new director of UNESCO's section of philosophy and humanistic studies.

*Science News Letter, March 13, 1948*

TECHNOLOGY

## Diamond Tool Cuts Curves Into Spectacle Lenses

➤ A NEW diamond tool to cut highly accurate curves into spectacle lenses used in correcting poor eyesight decreases by half the time required in lens grinding.

This new optical machine is a development of the American Optical Company, of Southbridge, Mass. and functions automatically after a few adjustments. It generates both spherical and cylindrical curves on the lens surface in one cutting operation. The lens is then ready for final finishing operations.

In describing the operation of the machine, W. A. Bonin of the company said the lens is first imbedded in pitch covering a curved metal block attached to a spindle. A magnetic chuck on the machine locks the spindle in the correct position for the diamond-impregnated tool to cut the prescribed curves in the lens. The head of the machine holds the diamond tool and is rotated in an arc.

*Science News Letter, March 13, 1948*

ENGINEERING

## Need No Wire Connections In Interlocking Battery

➤ TINY cells that interlock to form a miniature dry cell battery, eliminating the need for wire connections and the necessary soldering, were revealed by W. S. Allen, Electrical Division of Olin Industries, New Haven, Conn. When the cells are stacked together they interlock automatically.

The new interlocking cell, to be known as the Olin cell, was described by Mr. Allen as one of the principal advances in the manufacture of the modern dry cell battery. The tiny cells are made of plastics and are rectangular in shape. When stacked, they make a battery which occupies much less space than those of the usual cylindrical shape.

Each individual battery cell, regardless of size or shape, produces approximately one and one-half volts of electricity. Because of this, it has been possible to reduce the size of some of the new cells to almost wafer-thin dimensions without reducing voltage. They range in size from about half the area of a postage stamp to about one and one-half inches square, and from three-sixteenths to three-eighths of an inch thick. These batteries are designed primarily for use in hearing aids and small radios.

*Science News Letter, March 13, 1948*

NUCLEAR PHYSICS

# Atomic Radiation Fighters

**Need for an offensive attack against the destructive power of the atom has led to the creation of the first atomic medical school at Rochester University.**

By JANE STAFFORD

➤ AMERICA'S major medical offensive against exploding atoms that spread death and destruction will get under way in a few months through the creation in Rochester, N. Y., of a new kind of medical school.

There is urgent need for a new kind of doctor, "radiation fighters," to counter one of the most dangerous aspects of atomic bombs, atomic power plants and other man-made radioactivity.

We need a new first-line of defense against atomic radiation injury in peace or war.

If there ever is an atomic war, our Army and Navy will need medical officers trained to treat atomic casualties.

And peace in the atomic age will bring its new and special toll of accidental atomic casualties unless there are plenty of specialists to plan protection against such accidents.

### Civilian "West Point"

The first atomic medical school, a part of the University of Rochester and supported by the Atomic Energy Commission, will be a sort of civilian "West Point" for our defenders against the consequences of atomic energy.

Long before the atom bomb, radiation took its toll. A tragic peacetime by-product of World War I was the poisoning of girls who painted the radium watch dials which became generally popular after discovery of their military usefulness.

The general public at that time knew very little about radium, its power and its danger. Only a handful of people, doctors and other scientists who rarely entered a factory, would have known that it was dangerous to use lips and tongue to point brushes dipped in radium paint.

Today the whole world knows atomic radiation is dangerous. But there are still very few persons who can tell girls in a factory how to handle atomic chemicals safely. Nor would the workers themselves know, any more than the watch dial painters of a generation ago, whether there was danger in a new work method they themselves thought up for greater speed or efficiency.

We need experts to protect us from peacetime developments in atomic energy all along the line, from the miners who dig uranium-bearing ore out of the ground to men and women in factories putting atomic chemicals to new uses and including sick people being treated with them and people living in the neighborhood of our future atomic power plants.

### Effects of Atomic Radiation

Authorities do not believe that radiation used as a weapon will destroy the fertile greenness of the earth or that the human race will be wiped out in three generations by the effects of atomic radiation on reproductive cells. But they do believe, in fact they know, that much more information is needed on the effects of radiation on all forms of life.

Training scientists who can get this kind of information for us will be one of the jobs of the new atomic medical school.

To get this new information, they need first to study what is known now of the effects of radiation, how it burns and destroys when it hits the body from outside, and what it does to the blood-forming system, the heredity-carrying genes and other body cells when it gets into the body.

Courses in the new science of health physics will be taught. Knowledge of physics and electronics is needed for making safety measurements that guard against dangerous radiation.

How gases, dusts and aerosols spread must also be studied, since these may carry radioactivity in the air.

Chemistry, toxicology and legal medicine will be other subjects taught in the new atomic medical school.

Medical courses will include both treatment of radiation injury and methods of using the new radioactive chemicals to treat other kinds of diseases, such as cancer.

At Rochester they tell the story of a four-year-old boy brought to the hospital with a cancer of the thyroid gland. Surgeons removed this but the cancer had spread back into his throat and the boy had to have a tube put into an opening cut through his neck from outside so he could breathe. He was given a tracer dose of radioactive iodine and this showed that, fortunately, the cancer was the rare kind that picks up and concentrates iodine. The University of Rochester at that time had only a small cyclotron, so their supply of radioactive iodine was very small indeed. But one of the scientists was just then going to a scientific meeting in St. Louis. He got one of the scientists in that city to run his big cyclotron for the four days of the meeting and brought back with him enough radioactive iodine to save the child. Today, two years later, he is alive and well.

These thyroid gland cancers that can be cured by radioactive iodine are very rare. But scientists hope to find other radioactive chemicals that can destroy commoner varieties of cancer without damaging the rest of the body. Preparation to search for such chemicals and for the best way of using them will be included in some of the courses at the new atomic medical school.

### Protection of Public Health

Public health departments may be sending men and women to this school for training. Suppose a truck or train or plane carrying radioactive material is wrecked and the contents spilled on the roadside, right of way or, in case of a plane accident, into a community water supply. Protecting people from a water supply contaminated with radioactivity is probably just as much a function of health departments as protecting them from water supplies contaminated with typhoid fever germs. But the methods of testing for contamination and protecting against it are entirely different.

The school will take about 100 students at a time. About 30 of them will be taking short courses in health physics and protection techniques, including dust counts and other radiation measurements and blood chemistry. Another 30 will be college or university graduates studying for Ph.D. degrees. These will spend at least three years at the school. The remaining 40 will be doctors, either M.D.'s or Ph.D.'s or West Point graduates. Army and Navy doctors in this group will probably take a one-year course, civilian doctors a two-year course.

***GUARD AGAINST RADIATION DANGER—Laboratory workers are shown inserting a gun-shaped detector into a thick-walled concrete cell where the most dangerous of the radioactive materials are kept at Oak Ridge.***

Taking part in national defense against radiation danger is not an entirely new thing to the University of Rochester. The Manhattan District borrowed its professor of radiology, Dr. Stafford Warren, now at the medical school of the University of California at Los Angeles, to head its health protection and medical activities. And in 1943 the Manhattan District set up a medical research unit across the road from the University of Rochester's School of Medicine and Dentistry. The unit subsequently became the first and, so far, the only project of its kind operated by the Atomic Energy Commission. Its present director is Dr. H. A. Blair.

Discovery of a potential medical weapon against radiation damage, from the atom bomb or from non-military sources, has just been announced by two of this atomic energy project's staff. They are Drs. Paul E. Rekers and John B. Field. Their discovery is that rutin, obtained as a bright yellow powder from the green buckwheat plant among other sources, might save radiation victims by strengthening the walls of their blood vessels. This chemical, they reported, has protected dogs from the uncontrollable and fatal bleeding which is a primary factor in the deaths of humans and other mammals exposed to sublethal and midlethal doses of total body radiation.

But Dr. Rekers and associates are not stopping with this discovery. It came as part of a study of hemorrhage and the effects of radiation on the blood and blood-forming system. That study is continuing and promises further important new knowledge.

*Science News Letter, March 13, 1948*

NUCLEAR PHYSICS

# Atomic Power in Industry

➤ ATOMIC energy will have many industrial applications, but it will certainly not be immediate, the American Society of Mechanical Engineers, meeting in New Orleans, was told by Dr. Lyle B. Borst, chairman of the Nuclear Reactor Project, Brookhaven National Laboratory, Upton, N. Y.

It will be 10 to 20 years before atomic energy can compete favorably with coal as a source of industrial power, he said. Many problems are to be solved first, but the development of atomic power is one of the most direct and foreseeable future industries. The earliest applications will probably be for mobile use, as for ships, submarines and airplanes. Atomic powered automobiles are not deemed feasible.

The generation of power from the atom for peacetime use will be demonstrated at Brookhaven within the next two years, it is expected, he said. Since the nuclear reactor, of which he has charge of design, construction, and operation, is planned for research rather than for a power plant, the power generated will be a by-product. The nuclear pile will power a steam plant which will generate electricity to be used in driving cooling fans and other apparatus.

Among current problems is that of operating reactors at sufficiently high heat for the conventional engine. Dr. Borst declared that scientists have looked long and hard, but unsuccessfully, for a trick method of getting electrical energy directly from the chain reaction. We acknowledge generally, he said, that electrical power, for the foreseeable future, will be generated by means of the general heat engine.

Another problem is concerned with the economy of the fissionable material employed in getting atomic energy. In the utilization of uranium, only one atom in every 140 is the isotope U235 which undergoes thermal neutron fission, he stated. The other 139 are all U238 which absorbs neutrons to make plutonium.

Principal reactors throughout the country are based on the fission of U235. Thorium is not used at all. High-grade uranium is scarce. For a large-scale power industry, we must learn to use U238 as well as thorium. Then we will have enough raw material to generate power for centuries.

*Science News Letter, March 13, 1948*

ASTRONOMY-RADIO

## Decline in Sudden Storms Seen in Next Few Years

➤ FEWER sudden storms in the ionosphere that for a few hours completely knock out all communications and also fewer violent storms that black out all paths for many hours may be expected during the next six or seven years. But the band of usable radio frequencies for world-wide communication will become ever narrower during this period and from this trouble may arise. These trends are foreseen because the peak of sunspot activity, associated with shortwave radio disturbances, was reached last summer.

As activity on the sun decreases, the ionosphere also becomes less densely ionized so that it will not reflect the higher radio frequencies back to the earth, the

## Do You Know?

A hen takes some 80 pounds of *feed* a year whether she lays or not.

A radio-equipped *helicopter* was recently used to direct highway traffic.

Paper pulp, supplemented with molasses and soybean protein, is a good *cattle feed.*

*Decks* of American vessels of the future will be made of resin-treated compressed American woods instead of Far-East teakwood.

The moth that is seen flying around the house does not eat clothing itself; it is the tiny caterpillar-like larva that does the damage before it changes into the winged adult.

A "sustained yield" *forest* unit is one in which permanency is maintained by the cutting of only the fully-grown ripe trees and the adding of replacements if necessary.

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National Bureau of Standards states.

The first effects of sunspot decline will probably be felt on the 50-megacycle amateur band. Within a few months communication on this frequency will no longer be dependable for distances much greater than 75 miles.

The overall effect will be to jam all radio communication into an ever narrowing band of frequencies for world-wide communication. From a usable frequency band whose upper limit is now around 50 megacycles, it will narrow down, at sunspot maximum, to an upper limit of approximately 20 megacycles for continent to continent transmission.

This narrower band makes it possible for relatively slight disturbances to be more disastrous than at sunspot maximum when the usable range of frequencies is larger. At sunspot minimum, a minor storm in the ionosphere may effectively crowd out all usable frequencies. At maximum, it takes a violent storm to completely disrupt communications.

During the last year or so there have been both more spots on the sun and some of the largest sunspot groups of all time. The three largest groups ever photographed appeared in February and July, 1946, and in March-April, 1947.

*Science News Letter, March 13, 1948*

NUCLEAR PHYSICS

# Atomic Particle Created

**Major step in the exploration of matter is the first artificially created meson or mesotron. Consider it key to mystery of atomic heart.**

➤ THE elusive atomic particle, called both meson and mesotron, has been created artificially for the first time in the largest of the University of California cyclotrons. (*See SNL,* Jan. 10, Feb. 14.)

Hearts of helium atoms (alpha particles), accelerated to energies of 400,000 electron-volts, were used to give rise to mesons. Cosmic rays of similar energy create them naturally in the upper reaches of the atmosphere. It is understood that word of the achievement was passed out to some of the investigators of the atomic nucleus in this country. It is recognized as a major step in the exploration of matter.

The meson is considered the key that may unlock the mystery of the forces that hold the atomic heart together, just as the neutron discovered in 1932 was the key to atomic energy release in the first chain-reacting pile a decade later, and the atomic bomb in 1945.

There are theoretical grounds for hoping that the meson can blast energy out of heavy elements even more effectively than the neutron. The future may bring a meson atomic bomb, now that the scientists can create mesons under control.

Actually there are probably four or more varieties of particles called mesons. The most usual one found in cosmic ray bursts is about 200 times the weight of the electron. All of the kinds of mesons are intermediate between the electron, lightest subatomic particle, and the proton, heart of the hydrogen atom. The proton and the neutron are each about 2,000 times the weight of the electron.

Now that mesons can be made in the Berkeley giant "atom smasher" much more should be learned about them. Although mesons live only a fleeting fraction of a second, they can be studied and used as experimental tools once they are created at will.

Theoretical physicists suspect that mesons are a sort of go-between in allowing neutron and proton to turn into one another. They have evidence for this strange performance but do not yet understand what happens. The closest picturization would be the meson being passed back and forth like a ball between two basketball players.

Within the year four other accelerators—those building at Columbia, Rochester, Cornell and Harvard Universities—should be able to create mesons artificially. When these new machines come into use there should be greatly accelerated inquiry into the nature of the forces within the atomic nucleus.

It may be discovered that the proton and the neutron, both considered in the past as ultimate particles, may themselves be able to give rise to other, as yet unidentified, particles.

*Science News Letter, March 13, 1948*

MEDICINE

## Ephedrine Found To Have Pain-Killing Effects

➤ FOR your next operation you may get as anesthetic the modern version of an old Chinese drug, ma haung. Ephedrine is the name of the modern drug extracted from the same Chinese plant. It is related chemically and in its effect on the body to adrenalin and has been used for many patients with allergies, low blood pressure or other conditions in which adrenalin is also sometimes used.

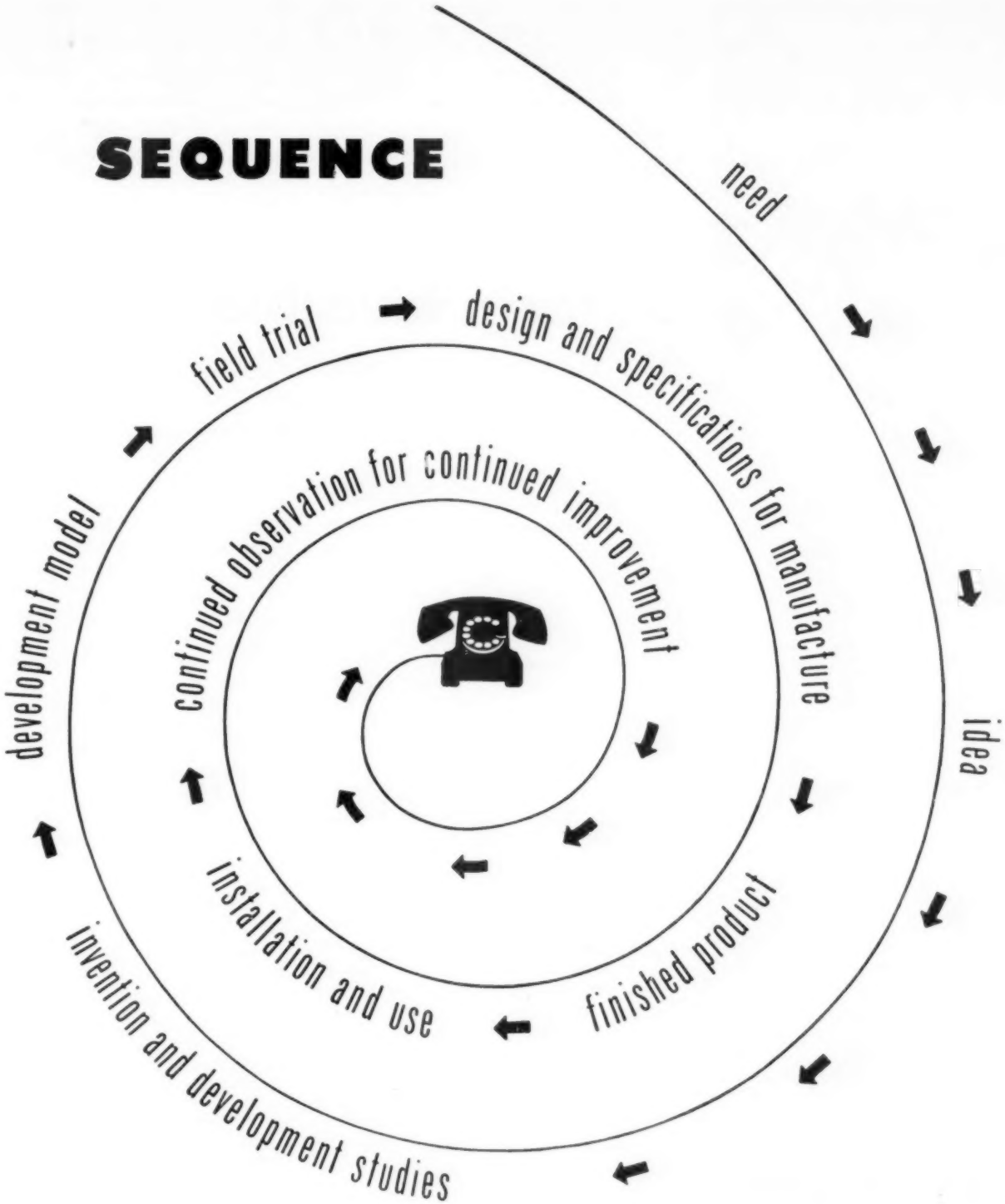
The anesthetic and pain-killing effects of ephedrine are reported by Drs. J. Eugene Ruben, Patricia-Mary Kamsler, and W. Lyall Howell, Jr., of Philadelphia General Hospital in the journal, *Science,* (Feb. 27).

A 43-year-old woman with diabetic infection of the foot had two toes amputated and extensive cutting and drainage of the foot under the anesthesia produced by a dose of ephedrine injected into her spinal canal. The drug did not put her completely to sleep, and she felt the operation but had no pain.

The use of ephedrine to prolong the effects of other spinal anesthetic drugs is now rather common practice, the Philadelphia group points out. But except for one scientist who found that ephedrine was a spinal anesthetic in frogs, no one has investigated the drug's anesthetic effect when used alone.

*Science News Letter, March 13, 1948*

# SEQUENCE

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BOTANY

# NATURE RAMBLINGS

*by Frank Thone*

## What Is Arbutus?

➤ ST. PATRICK'S DAY programs almost invariably include (and properly so) that beautiful Irish song, "My Love's an Arbutus." But listeners in the eastern United States and Canada, familiar only with the lovely early wildflower known as the trailing arbutus, are often a bit puzzled over the last verse, wherein the poet likens his fidelity to the evergreen leaf of the "arbutus tree." Lovely and fragrant though the trailing arbutus is, it certainly never even faintly resembles a tree.

The difficulty arises from the fact that the arbutus of Ireland (which incidentally is a member of the original and true genus *Arbutus*) actually is a tree, while our trailing arbutus belongs to a different, though related, genus, *Epigaea*. Its full botanical name, *E. repens*, exactly describes its quite un-treelike growth habit. *Epigaea* comes from two Greek words meaning "upon the earth", while *repens* is Latin for "creeping".

When our Gaelic bard sings:

"But tho' ruddy the berry and snowy the flow'r
That brighten together the arbutus bow'r,"

he shows that he knows his tree well, for the arbutus of Ireland normally continues to produce white flowers while its red fruits ripen. These red fruits have given rise to an alternative name, "strawberry tree".

Curiously enough, while the one foreign sister-species of our Eastern trailing arbutus grows in Japan, the only other species closely related to the tree arbutus of Ireland (incidentally also of southern Europe) occur in our own West. The large shrub or small tree known in California by the Spanish name *madrona* belongs to the genus *Arbutus*. There is also an *A. arizonica*, a very handsome plant, that seems to have no generally accepted common name.

*Science News Letter, March 13, 1948*

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ENGINEERING

# Detects Invisible Vapors

**Device, which functions as leak detector, looks like a "Buck Rogers" pistol. It is sensitive to some vapors and air-borne particles, including odorless gases.**

➤ A LABORATORY device, described as having a sense of smell but which does not really function in the same manner as the human nose, detects certain classes of invisible vapors and air-borne particles including some which have no odors.

The instrument was described to the Institute of Radio Engineers by William C. White of General Electric, and also described by J. S. Hickey of Schenectady on the General Electric WGY Science Forum, held in New York,

The basic phenomenon used in this detector is the positive ion emission from a hot platinum surface operating in air. Electrons are the basic particles of electricity. Positive ions are atoms which have lost one or more electrons, they explained.

### Emission of Positive Ions

The emission of positive ions from a surface can be greatly increased by certain vapors present in the air striking the electrode surface, it has been discovered recently. The chief requirement for these vapors is that they contain one of the halogens, fluorine, chlorine, bromine or iodine. The percentage increase in current is enormously greater than the percentage of halogen in the air.

We have taken this knowledge, both scientists said, and made a sensitive element comprising a red hot center electrode surrounded by cylindrical outer element. Since this device used positive ions instead of electrons, the inner hot electrode must be made positive in respect to the outer and is the anode of the tube. The entire electrode structure is made of platinum, which is one of the materials that can run red hot in the air without oxidizing.

To use this sensitive element as a leak detector, it is mounted in a casing. A small blower moves an air sample through a sampling tube and from there through the sensitive element. A pistol grip is added for convenient holding. The whole assembly looks like a "Buck Rogers" pistol.

The pistol, or detector, is connected by a cable to a control box which takes current from a 115-volt alternating current circuit, and supplies the sensitive element with low voltage for the heater and blower motor and direct current for the cathode. In addition it contains a simple amplifier to increase the signal from the sensitive element, and to give an audible response.

If a vessel suspected of having a leak is put under pressure with a gas containing a halogen there will be a concentration of the leaking gas near any leak that might exist. When the sampling tube is passed along the suspected surface, the presence of the escaping gas is evidenced by a change in tone of the signal from a loudspeaker.

*Science News Letter, March 13, 1948*

## Science Service Radio

➤ LISTEN in to a discussion on spring floods on "Adventures in Science" over Columbia Broadcasting System at 3:15 p.m. EST, Saturday, March 20. Mr. Lyle Watts, Chief of U. S. Forest Service, will be guest of Watson Davis, director of Science Service. Mr. Watts will tell the story behind the floods and the dreadful toll they take in property and human lives.

*Science News Letter, March 13, 1948*

# Books of the Week

*TO SERVE YOU: To get books, send us a check or money order to cover retail price. Address Book Dept., SCIENCE NEWS LETTER, 1719 N St., N. W., Washington 6, D. C. Ask for free publications direct from issuing organizations.*

THE ANCIENT VOLCANOES OF OREGON—Howel Williams—*Oregon State System of Higher Education,* 55 p., 13 pl., paper, $1.25.

THE BIRDS OF NANTUCKET—Ludlow Griscom and Edith V. Folger—*Harvard University Press,* 156 p., illus., $3.25. Including what is not known as well as what is known about the birds of that Massachusetts island.

THE EARLIEST RECORDS OF CHRISTIANITY—E. L. Sukenik—*American Journal of Archaeology,* 30 p., illus., paper, $1.00 or 80 cents each in lots of 20 or more.

ELECTRONIC CIRCUITS AND TUBES—Electronics Training Staff of the Cruft Laboratory—*McGraw-Hill,* 948 p., illus., $7.50. Developed from lecture notes in the special wartime training course in the Graduate School of Engineering, Harvard.

THE FLIES THAT CAUSE MYIASIS IN MAN—Maurice T. James—*Govt. Printing Office,* 175 p., illus., paper, 35 cents. Brings together previously scattered information about this important group of insect pests.

FLUID MECHANICS OF TURBOMACHINERY—George F. Wislicenus—*McGraw-Hill,* 613 p., $7.50. For advanced students and engineers.

FM TRANSMISSION AND RECEPTION—John F. Rider and Seymour D. Uslan—*John F. Rider,* 409 p., illus., paper $1.80, cloth $2.70. A book for workers in the field.

HEALING HERBS OF THE UPPER RIO GRANDE—L. S. M. Curtin—*San Vicente Foundation,* 281 p., illus., $7.50. A study of the folklore of plant medicine in New Mexico. From the Laboratory of Anthropology.

MAN, WEATHER, SUN—William F. Petersen—*Thomas,* 462 p., illus., $10.00. A statistical study with some unorthodox conclusions.

THE MARSHALL PLAN—Sidney S. Alexander—*National Planning Association,* 68 p., paper, 50 cents. Background on a vital topic prepared by a former consultant of the State Department.

MATHEMATICAL TABLE MAKERS: Portraits, Paintings, Busts, Monuments, Bio-Bibliographical Notes—Raymond Clare Archibald—*Scripta Mathematica,* 82 p., illus., $2.00. Interesting reference material.

ORGANIC FORM AND RELATED BIOLOGICAL PROBLEMS—S. J. Holmes—*Univ. of California Press,* 169 p., $5.00. An attempt to provide a better understanding of the normal growth and repair of living organisms as well as the abnormal cell development in cancer.

POSTWAR GERMANS: An Anthropologist's Account—David Rodnick—*Yale University Press,* 233 p., $3.75. An account of home and community life in a country so devasted that it will take 25 years to clear away the rubble, as seen through the eyes of a scientist.

RADAR BEACONS—Arthur Roberts, Ed.—*McGraw-Hill,* 489 p., illus., $6.00. A text and reference book in a new field from the Radiation Laboratory of MIT.

SYMPOSIUM ON PAINT AND PAINT MATERIALS (1947)—*American Society for Testing Materials,* 115 p., illus., paper, $2.00, cloth $2.65. Technical papers.

TOPICS IN PHYSICAL CHEMISTRY: A Supplementary Text for Students of Medicine—W. Mansfield Clark—*Williams & Wilkins,* 738 p., illus., $10.00. Useful not only as a text but as a reference book for technologists in the clinical laboratory.

TURKISH ARCHERY AND THE COMPOSITE BOW—Paul E. Klopsteg—*Klopsteg,* 2d ed., 187 p., illus., $4.50. Of interest to both scientists and sportsmen is this analysis of Turkish archery in the light of modern scientific studies.

*Science News Letter, March 13, 1948*

GENERAL SCIENCE

## UNESCO Plans Exchange Of Medical Literature

➤ URGENTLY-needed medical literature from the duplicates in American medical libraries will be distributed abroad through a new service inaugurated by the United Nations Educational, Scientific and Cultural Organization and the American Medical Library Association.

Under the new plan, American medical libraries will send lists of available duplicates to UNESCO. The UN organization will distribute the lists to foreign libraries and handle requests for the material listed.

At present, foreign libraries will not be able to offer many publications in return, but the plan calls for eventual establishment of a multi-lateral exchange in which the American libraries would receive foreign publications.

*Science News Letter, March 13, 1948*

CHEMISTRY

## New Research Announced on Salt Solutions and Metals

➤ A NEW study of metals in contact with common salt solutions is being undertaken by Dr. Donald MacGillavry, Jr., associate professor of chemistry at Clark University, at Worcester, Mass., under a contract with the Navy.

The new research will involve the measurement of electric potentials, requiring the development of new precision measuring techniques, it was stated. The project was proposed to the Navy by Dr. MacGillavry, who has done previous work in the field.

*Science News Letter, March 13, 1948*

"MAN'S MIND IS MAN HIMSELF"

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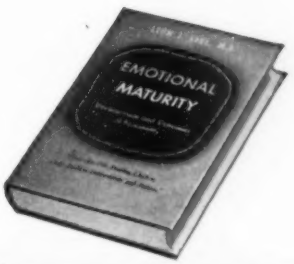


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*TAIL SIGN for trucks and buses enables the driver to let cars behind know when the road ahead is clear so that they can pass. The truck driver merely presses a button; the tail sign lights up to display the words "OKAY —PASS."*

*Science News Letter, March 13, 1948*

*FOAMGLAS insulation, for both hot and cold pipes, indoors or outdoors, comes in half sections of various sizes to fit any pipe. The non-combustible material, of true glass composition, is an excellent insulator, is unaffected by humidity and resists chemical fumes.*

*Science News Letter, March 13, 1948*

*PORTABLE POWERED helper machine for on-the-spot repair work, 32 inches high and mounted on three caster legs, has interchangeable tools for grinding, buffing, drilling, sawing, sanding and other operations on metals or wood. It operates on ordinary household electric current.*

*Science News Letter, March 13, 1948*

*LOW-COST BINOCULARS, for use in theaters, hunting or in nature study, are made of six pieces of phenolic plastic, together with the necessary lenses. The lightweight instrument, which fits the ordinary shirt pocket, has a wide field of vision.*

*Science News Letter, March 13, 1948*

*SPRAYER, to apply fertilizer, weed-killing chemicals or insecticides to lawns, is attached to the lawnmower as shown in the picture and uses a tank of compressed carbon dioxide gas instead of the pump usually used in spray units. The combination sprays as it mows.*

*Science News Letter, March 13, 1948*

*HEATING CABLE, which operates on ordinary household electric current, can be stretched along the eaves of a house to prevent the formation of overhanging ice, or can be used to clear icy doorsteps or to warm garden soil. It is a lead-covered flexible cable, one-quarter of an inch thick.*

*Science News Letter, March 13, 1948*

*REAR-SEAT RADIO speaker, which may also be installed in a trailer, permits all passengers in an automobile to hear without the radio receiver volume necessary with the instrument in its usual place in the front panel. The rear-seat speaker is installed in the space behind the seat.*

*Science News Letter, March 13, 1948*

*FLASHLIGHT for policemen directing traffic shows either green or red by pushing a button that revolves a rotating sleeve. The color changes in this recently patented device is due to colored disks within a tube which is fixed in front of the light-end of an ordinary flashlight tube.*

*Science News Letter, March 13, 1948*


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## Question Box

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**Photographs:** *Cover, Fremont Davis; p. 162, p. 165, Westinghouse Electric Corp. and Fremont Davis; p. 171, Clinton National Laboratory.*